Architectural

General:

1. *The following information is provided as a guide in establishing architectural requirements and should not be construed to limit the consultant from proposing more cost effective alternates.*

2. ***Code and Standards**. Facilities will be designed per the currently adopted UM codes and standards. Following is a link to currently adopted codes and standards:*

   https://collaborate.umsystem.edu/sites/fpd/public/docs/UM%20Code%20List.pdf

   > ***UM AHJ Code Determination documents**: Similar in nature to other jurisdictional code ordinance documents, Code Determination documents provide clarifications or exceptions to adopted codes and may affect project design. Following is a webpage link to the list of UM AHJ Code Determinations currently in effect:*
   >
   > Building Inspections Program | University of Missouri System

3. *All new University buildings and major renovations should include at least one restroom facility that is open to people of any gender, or "gender neutral". The consultant should consider adding diaper changing stations at these locations for family-friendly use, verify with PM. A "Gender Neutral/Family Restroom" is defined as an independent single water closet/lavatory space that has a door which can be locked, and is identified with signage (verify signage with PM), and accessed from a public corridor. All Gender Neutral/Family restrooms must meet current ADA standards for accessibility.*

4. *Finished floor height will be expressed on contract documents as actual elevation based on USGS datum, not on an arbitrary one.*

5. *Combustible frame system construction is not allowed for any New University Construction without approval by AHJ and Director of UM Risk Management.*

6. *Sustainable Design Considerations.*

Current University of Missouri Sustainable Design Policy:

- *The University of Missouri recognizes the value of sustainable capital project development in order to meet today's needs without compromising the ability of future generations to meet their own needs. It is the policy of the University of Missouri to incorporate sustainability principles and concepts in the design of all facilities and infrastructure projects to the fullest extent possible, while being consistent with budget constraints, appropriate life cycle cost analysis and customer priorities. This policy applies to renovation and new construction regardless of funding source or amount; to projects accomplished both in-house and through A/E contracts; and to designs associated with all construction methods. Environmental concepts that guide sustainably designed projects are:*
  - *Sustainable Sites: Meet or exceed State of Missouri DNR best management practices for erosion and sedimentation control standards. Accommodate alternative transportation methods.*
  - *Water Efficiency: Target water efficient landscaping, reduced water usage, and innovative stormwater management.*
  - *Energy and Atmosphere: Encourage optimal energy performance, including appropriate levels of commissioning.*
  - *Materials and Resources: Support construction waste management programs. Provide space for building-based recycling program. Encourage use of local and regionally-produced materials and building products made with recycled content.*
  - *Indoor Environmental Quality: Pursue toxin-free indoor air through appropriate ventilation and use of building materials that emit low levels of volatile organic compounds (VOCs).*
- *The University will not typically seek certification of projects through the USGBC Leadership in Energy and Environmental Design (LEED) process. However, the design of University buildings should strive to achieve an equivalent LEED-certified level while supporting goals stated above. Specific projects may seek LEED certification if campus goals and budget align, verify requirements with PM.*

- *Verify project requirements with PM.*

7. Building Envelope.

- *The building envelope will comply with the latest edition of ASHRAE 90.1 Standard. (discuss design temps and heating degree day information with PM).*
    - *MU uses St. Louis data.*
- *Drain tiles are to be installed at footings and tied to storm sewer system as allowed by local municipalities. Downspout drains and perimeter drains need to be separated. Down spouts will be tied into storm sewers and will not discharge on grade.*
- *Crawl spaces will have concrete floor slabs, floor drains, ventilation and lighting.*
- *Exterior building materials will be selected to maintain and/or compliment the harmonious nature of the campus. Care will be given to provide a consistent image to the historical character of the campus. Materials should be practical, low maintenance, durable, and cost effective.*
    - *Exterior wall systems of brick veneer over block backup are preferred. The Project Manager must approve the use of steel stud backup.*
    - *Exterior insulation and finish systems [EIFS] stucco, and plaster will not be used as the primary finish of a building or renovation. The allowed use is for small areas or soffits with the approval of the Project Manager.*
    - *The use of curtain walls, spandrel panels, etc. is generally limited to public and vertical circulation areas. The project manager must approve other applications.*

8. Environmental Health and Safety.

- *Coordination is required with campus Environmental Health and Safety (EHS) and PM. Link to MU EHS:*

  https://ehs.missouri.edu/

  EHS serves as the liaison between campus and regulatory agencies. EHS keeps track of these regulations and works with the campus community to develop appropriate policies and procedures; coordinate with PM.

- ***Hazardous Materials***
  Asbestos Containing Materials
  - *The University will furnish the consultant a completed asbestos removal specification. These are to be inserted into Division 2 and will be considered a part of the contract documents. Asbestos specifications will be furnished after the final contract documents review meeting along with the advertisement. See "UM Asbestos Removal Specifications", FPD Document Page:* https://collaborate.umsystem.edu/sites/fpd/public/docs/Asbestos%20Spec.docx?
  - *The University will retain an asbestos consultant through a separate agreement to develop and provide the survey and abatement documents. PM will coordinate with the asbestos consultant in the development of contract documents.*
  - *Asbestos consultant should be listed as a special consultant to the Owner in the Special Conditions. The asbestos abatement specifications should be listed in the project manual table of contents.*
- ***Lead Containing Materials Guidelines*** *– (See Appendix 16a, FPD Document Page)* https://collaborate.umsystem.edu/sites/fpd/public/guidelines/16aappendix.pdf
- ***Miscellaneous Hazardous Materials***
- *MU EHS Provides Guidance/Assistance for Management of (including but not limited to):*
  - *Mercury Containing Devices*
  - *Oil and Oil Containing Devices*
  - *Bulbs and Lamp (both intact and broken)*
  - *Lamp Ballasts (both containing PCBs and PCB-free)*
  - *Lead Metal*
  - *Paint containing Heavy Metals (both left intact and removed)*
  - *Freon and Freon containing devices*
  - *Water Treatment Chemicals*
  - *Batteries*
  - *Smoke Detectors*
  - *Exit Signs*
- *The direct link to this guidance is at:* http://ehs.missouri.edu/haz/pdf/demolition-renovation-guidance.pdf

STRUCTURAL

General:

1. *The following information is provided as a guide for designing structural support systems. All load criteria will be in accordance with the latest edition of IBC.*

2. *Load criteria for all structural systems will be noted on the drawings.*

3. *Separate additions from existing structures with an expansion joint.*

4. *Do not transfer vertical loads through horizontal expansion joints.*

5. *Gypsum roof decking will not be used. Preferred roof decking material is steel or concrete.*

6. *All roof decks will be designed with a minimum slope of 1/4" per foot. Positive slope for drainage will be provided by the roof deck rather than tapered insulation (except at crickets and around equipment pads).*

7. *Provide seismic design analysis for all new buildings, additions, and renovations where structural modifications are involved. It is recommended that a seismic design analysis be performed in the programming/budget analysis phase of all renovation/addition projects.*

Foundations:

1. *Subsurface design requirements will be based on a current geotechnical investigation from which soil profiles, design parameters, compaction requirements, and foundation design options are established.*

2. *In instances where concrete duct banks, steam tunnels, and other concrete masses join foundations walls, steel pins for reinforcing steel anchoring will be attached to the foundation walls through use of epoxy. Penetrations of foundation walls by direct burial cable and/or small diameter penetrations shall be sleeved or core drilled, and shall be sealed. Discuss sealant requirements with PM.*

Floor Loading:

1. *Floor loadings will be increased as required to meet equipment loadings and conditions specified by equipment manufacturer.*
2. *If live load reduction is used, it will be in accordance with the latest edition of IBC and must be noted on the drawings.*

Roof Loadings:

1. *Minimum roof load design will comply with live load or snow load, whichever is greater.*

2. *Roof service loading will be increased as required for external equipment, ducting, and supported utility requirements.*

Wind Design:

1. Every building and structure will be designed and constructed to resist prescribed wind effects. Wind will be assumed to come from any horizontal direction. Wind effects willbe analyzed in at least two mutually perpendicular horizontal planes.

Precast Concrete Design Criteria:

1. *The architect will specify allowable deflections to be used in the design of the panels to maintain integrity of the panel.*

2. *Panels will be designed with adequate structural integrity to permit handling, transportation, storage, and erection.*

3. *Waterproofing materials are discouraged on new concrete surfaces.*

Masonry:

1. *Design and construction guidelines and technical notes of the Brick Institute of America (BIA) will be followed for brick and the Masonry Advisory Council (MAC) for concrete masonry unit (CMU) construction.*

2. *Use of stone coping for modification to existing facilities with stone coping will be allowed. Use of stone coping for design effect will require specific approval from the PM.*

3. *Masonry units will not be used for foundations walls below grade.*

4. *Waterproofing materials are discouraged on new masonry, or stone surfaces. Use will require PM approval.*

5. *The designer will evaluate the expected movement for each wall and require adequate expansion joints to accommodate the movement.*

END OF SECTION